Efcon® Water

User Manual

Vision 130™ CPU

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1.1 General

Efcon® is developed by A.V.M. (Netherlands) as a complete package for Effluent Control Systems. Efcon® products are designed for measuring and controlling wastewater flows.

Efcon® products meet the tough Dutch regulations (NEN 6600-1) and the international standards according ISO 5667-2/3&10.

Products from the Efcon® program
Samplers (several types), level controllers, pump controllers, registration equipment, sample distributor systems, flowmeters (industrial and sewers), measurement pits, cool units, mobile systems, etc.

BEFORE YOU START

Read the manual before you connect the unit to a power supply or install.
In case of illegal use or use in non-defined areas, any form of warranty will be denied. The user needs to be informed about the user manual and application dangers.

Installing and adjusting parameters of the sampling system should be done by qualified personnel.

Check transported equipment for any transport damage. In case of damage, directly contact your supplier and do not install the equipment. The equipment is tested (different quality tests) in the AVM factory (Hei- en Boeicop, Netherlands) before it is transported. Required maintenance or repair, which will not influence the warranty period, will have to be carried out by trained Efcon® specialists. All equipment returned to AVM needs to be cleaned, sterilised and transported in a safe enclosure to avoid health-threatening situations. In case of service or repair, the equipment will not be accepted by AVM if there is no declaration of origin and safety added to the equipment. Extra cleaning can be refused or will be charged! Warranty will be denied if there are mechanical, electronic or software changes in the unit which are not performed by AVM.

BASIC WARRANTY PERIODS
When used and installed according specifications, not used for more than 150 samples and 24 distributor turns a day in a non-aggressive well ventilated environment.

- 48 months for thermoplastic enclosures for stationary use
- 24 months for electronic components
- 12 months for moving parts, such as pumps, pinchers & actuators.
- 3 months under courtesy for wearing Parts such as Seals, Rotor & discs of the vacuum pump.

1.2 Application area Efcon® equipment

Be aware! Wrong application or misuse can damage the equipment or the surrounding of the unit and is not covered by any form of warranty.

Surrounding conditions:

- Temperature: 0°C / +40°C. (-25°C / + 55°C optional)
- Well ventilated environment
- AVM advises not to place the enclosure into direct sunlight, for an optimal cooler output. Systems in direct sunlight cool less efficient due to a higher surrounding temperature!

Use in explosion hazardous environment is prohibited unless mentioned on the product and in the manual!

Sample Medium:

- See Sampler Manual

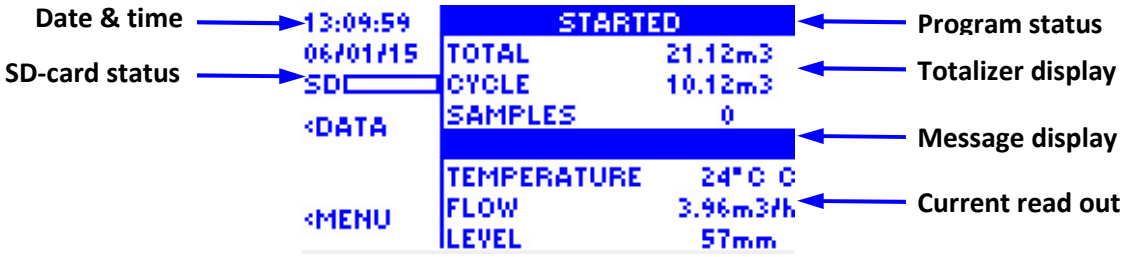
1.3 Human interface

The Vision 130™ display and operating elements are:

Key	Key assignment
Info/Status	Shows general info (date time etc.).
F1	Function key F1.
F1	Function key F2.
1,2,3… etc.	Numeric keys, to navigate throughout the menu, enter values.
ESC	Return to the previous display, undo changed settings (when not confirmed).
+/-	-
↵	To change or to confirm a change value.
▲/ ▼/◄/ ►	Cursor keys to move the cursor and adjust settings.

1.4 Display

During normal mode the display shows the following totalizer display:



Program status: Indicates the status of the automatic sample program.
Totalizer display: **Total:** Totalizes the flow signal connected to the input (digital or analogue) and displays the volume in m^3 (cubic meters), this counter cannot be reset. See menu 4.2 to configure the flow signal. **Cycle:** Totalizes the flow signal, number of samples and error samples (between brackets). This totalizer resets when the sampler changes container. When there's no distributor, it resets on a programmable time (3.1).
Message display: Indicates current events / alarms, e.g. sampling, alarm messages, pump failure, etc.
Current read out: Shows (when connected) the Temperature (°C), and actual flow (m^3/hour) and / or level (mm).
Date & Time: Current date and display.
SD-Card status: Displays the used / free space on the SD-card.

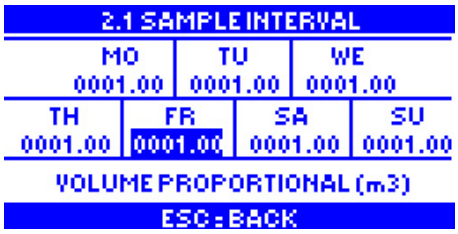
1.5 Main menu

When the display shows the totalizer, press **F2** to enter the main menu.
First press ↵ to enter the password (default **5555**).
To return press **ESC**. Press the corresponding numeric key (**1** t/m **6**) to enter one of the following sub menus

1 Operator functions: User functions; such as manual sample, move distributor to the next container, reset function, start/stop sampling program or start/stop program on a specific date & time.
2 Sampler settings: Enter the desired sample interval, adjust the sample volume, air pump timers, maximum number of error samples.
3 Distributor settings: Adjust turn time, turn day, container configuration, turn after power failure, container overflow protection.
4 In-/output configuration: Select & configure the installed flow signal, level sensor settings, temp. sensor settings, alarm output settings.
5 Pump settings; Set point pump controller, alarm levels, overflow level, alternating pumps, hour meters pumps & overflow.
6 General settings, Changing date / time, cool unit settings, hardware settings, SD / log settings.

1.6 Changing parameters

Be aware! Faulty settings may lead to defect hardware.
Adjusting parameter settings should be done by qualified personnel.

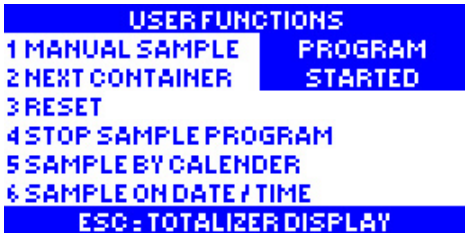


To change / adjust settings, move the cursor (inverted text like 001.00 beneath FR) with the keys ◄ or ►. To adjust its value press ↵. Use the numeric keys or the ▲ or ▼ keys to change the setting. Press ↵ to save the adjusted value.

1.7 Operator functions

Manual operating of the sampler, for instance; taking a manual sample, moving the distributor to the next container & start/stopping the sample program are done in the menu **Operator Functions**.

F2 (Menu) > 1 (Operator functions)



1 Manual sample: Immediately take 1 sample.
2 Next container: Immediately move the sample outlet to the next container.
3 Reset: Reset menu to reset errors, cycle counters, log data.
4 Start sample program / Stop sample program: Start or stop auto sampling according the pre-set sample interval (see §2.1) & the distributor turns to the next container on a pre-set turn time & day (see §3.1).
5 Sample by calendar: Start and stop auto sampling on pre-determined calendar dates (see §1.7.2).
6 Sample by date/time: Start and stop auto sampling on pre-determined date & time (see §1.7.2).

1

1.7.1 Reset parameters

Alarm messages of the sampler can be reset in menu **1.3 Reset parameters**. Totalizers, pump hour counters, logging data can also be reset in this menu.

1 Reset error sample alarm: Press 1 to reset the error sample alarm
2 Reset current cycle counters: Press 2 to reset the cycle counters in the totalizer display.
3 Reset log data: Removes the stored data for cycle log, frequency log and event log (see §).
4 Reset Clean level pin error: Reset blocked sample interval, due to pump problems.

1.7.2 Program by calendar dates

To start or stop the auto sampling program on a pre-programmed date & time. When the totalizer display is active, press the following:

F2 (Menu) > 1 (Operator functions) > 6 Sample by date/time

The following display is loaded:
When the sampler is programmed with these settings, the sampler starts the auto sampling program every month on the 11th, 12th, 13th, and 14th at 08:00. It will then take samples according the set sample interval (see §2.1).

Changing calendar month

When the month is selected (inverted text) press ↵ and the text begins to blink, choose a month with ▲ and ▼, press ↵ to load the calendar of the chosen month.

Changing calendar days

When de calendar is selected press ↵ and the cursor starts to blink. You can move the cursor with the arrow keys. Press ↵ to activate the selected day. By pressing ↵ when a selected day is already activated, the day is deactivated.

Changing start time

Select the digits behind "START" to change the start time of the auto sampling. Press ↵ and enter the desired start time with the numeric keypad.

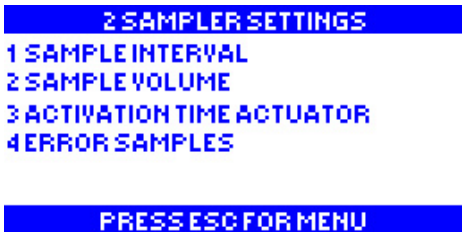
Changing sample duration

Select digits behind "DURATION" to change the duration of the auto sampling. When selected press ↵ and enter the desired auto sample duration (in hours). The sampler will auto sample during this time when the clock time and start time are a match.

2 Sample settings

The sample settings can be changed in menu 2 “Sampler Settings”. Go to:

F2 (Menu) > 2 (Sampler settings)



1 Sample Interval; Fill in (for every day of the week) the desired sample interval. Also choose the sample principle (§2.1.1).

2 Sample Volume; Fill in (in ml) the sample volume.

3 Activation time Actuator: Activation time for ILS actuator.
3 sec. for samplers with a pneumatic actuator
(add flush time when necessary).
20 sec. for samplers with electric actuator
(add flush time when necessary).
3 Vacuum pump settings: Activation time for the air pump during: **Purge**, **Suction**, **Dose**: (§2.1.3).

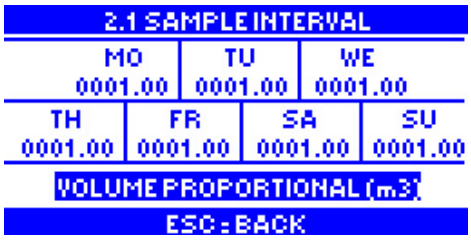
4 Error samples: Maximum number of consecutive error samples to trip the alarm and stop the auto sampling (see §2.4). 0 = continuous sampling.

2.1 Sample interval

To change the sample interval or principle go to:

F2 Menu > 2 Sampler settings > 1 Sample interval

Choose between the following sample principles:



Volume proportional: Pulse (volume) proportional sampling; take a sample every set number of m^3 counted on the digital pulse input (setting in m^3).

Time proportional: Sampling by a time interval. Sample every xx minutes. (settings in minutes).

Event sampling: Time-proportional sampling during activation of the pulse input.

Fill in the desired interval for each day of the week.

2.2 Sample volume

To change the sample volume (ml) go to:

F2 Menu > 2 Sampler settings > 2 Sample volume

Beware:
For ILS sampling, change plunjer hardware (check Efcon manual).
For Vacuum sampling change hardware, adjust the tube inside the sample chamber (check Efcon manual).
For Peristaltic sampling, adjust the dose time in menu 2.3.3.

2.3.1 Activation time actuator (for ILS samplers only)

For adjusting the activation time of the actuator go to:

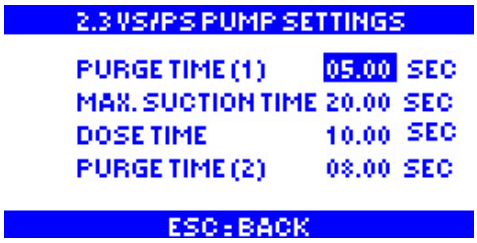
F2 Menu > 2 Sampler settings > 3 Activation time Actuator

Sampler Type	Recommended activation time
ILS Guillotine 05	3 seconds
ILS 2WE	20 seconds
ILS 3WE	20 seconds (+ flush time)
ILS 2WP	3 seconds
ILS 3WP	3 seconds (+ flush time)

2.3.2 Air pump Settings for Vacuum samplers

To adjust the (air) pump settings go to:

F2 Menu > 2 Sampler settings > 3 Vacuum Pump Settings



1. **Purge Time 1**: The pump creates pressure and blows the suction hose clear of water.
2. **Max. Suction Time:** When the sampled medium hasn't reached the level pins within this time, the sampler counts an error sample.
3. **Dose time:** During this time the air pump blows the excessive water inside the sample chamber, "dosing" the sample until its needed volume.
4. **Purge Time 2:** Not used.

2.3.3 Air pump Settings for Peristaltic samplers

To adjust the (air) pump settings go to:

F2 Menu > 2 Sampler settings > 3 Vacuum Pump Settings

1. **Purge Time 1**: The pump creates pressure and blows the suction hose clear of water.
2. **Max. Suction Time:** When the sampled medium hasn't reached the level pins within this time, the sampler counts an error sample.
3. **Dose time:** This timer determines the sample volume.
   During this time the pump doses the sample. Make this time longer for a larger sample volume, or shorter for a smaller sample volume.
4. **Purge Time 2:** The pump empties the suction hose through the inlet during this time.

2.4 Error samples (optional for ILS samplers)

When a correct sample is taken, the sampler receives an internal contact and the sampler knows the sample was correctly taken. When the sampler doesn't receive an internal contact an error sample is counted. This counter resets when a correct sample is taken.
When too many (adjustable by parameter 3.4) consecutive error samples are counted, the sampler will display: *To many error samples* and the auto sampling will stop. The alarm output will be tripped too.

To adjust this setting:

F2 Menu > 2 Sampler settings > 4 Error samples

To reset this message, go to:

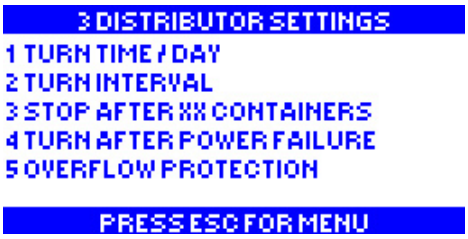
F2 Menu > 1 Operator functions > 3 Reset > 1 Reset Error Sam…

To keep sampling and disregard the error samples, set the parameter to **0**.

3 Distributor settings

Samplers with multiple containers are equipped with a distributor system. This distributor rotates the outlet hose to the next container (clockwise).
To change the distributor settings go to:

F2 Menu > 3 Distributor settings


3 DISTRIBUTOR SETTINGS
1 TURN TIME / DAY
2 TURN INTERVAL
3 STOP AFTER XX CONTAINERS
4 TURN AFTER POWER FAILURE
5 OVERFLOW PROTECTION
PRESS ESC FOR MENU

1 Turn time/day: Use this setting to adjust the clock time the distributor needs to turn (see §3.1).
2 Turn Interval: Use this setting to program multiple container rotations a day according a set interval (turn every xx hours).
3 Container Config.: Container configuration; Select the total number of containers and determine the container volume.
4 Turn after Power Failure: Turns the distributor to the next container after a power failure.
5 Overflow Protection: Container overflow protection; the sampler counts the sample in each container (when it almost overflows).

3.1 Distributor turn time

To adjust the time the distributor needs to turn to the next container go to:

F2 Menu > 3 Distributor settings > 1 Turn Time

Turn time: Enter the desired time to turn the sample outlet to the next container.
Turn Day: Select which day the distributor turn to the next container.

3.2 Turn Interval

3.2 TURN INTERVAL
FILL IN THE DESIRED DISTRIBUTOR INTERVAL. THE INTERVAL STARTS AFTER THE TURNTIME.
OFF
TIMER: 00: 00: 00
ESC : BACK

When needed it's possible to turn the distributor on a set time Interval.
This interval starts after power failure and is reset by the Turn time (§3.1).
This interval can be set to 1/2/3/4/6/8/12/24/48/72/96 hours.
When programmed OFF this setting is not used. To change go to:

F2 Menu > 3 Distributor settings > 2 Turn Interval

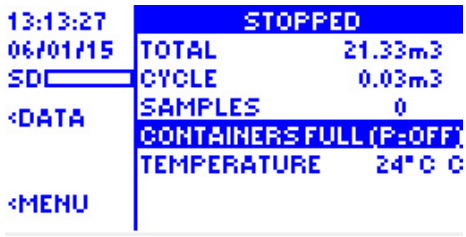
3.3 Stop after xx container rotations

When the sampler needs to stop the auto sampling program after a set number of container rotations go to:

3.3 STOP AFTER XX CONTAINERS
FILL IN AFTER HOW MANY CONTAINER CHANGEMENTS THE SAMPLER NEEDS TO STOP THE SAMPLING PROGRAM:
24
CONTAINER FILLED: 00
ESC : BACK

F2 Menu > 3 Distributor settings > 2 Stop after xx containers

24: Select after which amount of container rotations the sampler needs to stop the auto sampling program. Choose from: OFF/1/2/3/4/ 6/8/12/24.
Containers filled: Actual number of container rotations since the last reset.



When the set number of container rotations are reached, the text "Containers full (P=off)" display appears and the auto sampling program stops.

Go to "1 Operator Functions" restart the auto sampling program.

3.4 Turn after power failure

To let the Distributor turn to the next container after power failure go to:

F2 Menu > 3 Distributor settings > 4 Turn after power failure

ON: Turn the distributor after power failure.
OFF: Don't turn the distributor after power failure.

3.5 Overflow Protection

The container overflow protection turns the Distributor to the next container when it's about to overflow, or stops the sampling program until the distributor move to the next container on the distributor turntime.

F2 Menu > 3 Distributor settings > 5 Overflow protection

ON: Container overflow protection on.
OFF: Container overflow protection on.

4 Configuring Inputs / output

To configure or adjust the input signals on the sampler go to:

F2 Menu > 4 In/Output configuration

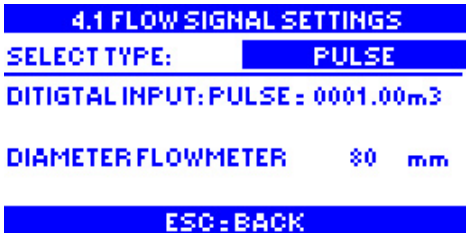
Flow signal settings: Determine the flow signal type, is signal is used to totalize the m^3 and to do the volume proportional sampling.
Level sensor settings: Select which type sensor is used to measure the water level. (for pump controllers or open channel flow measurement.
Temp. sensor settings: Temperature sensor settings, don't change.
Alarm output: Determine the alarm contact switches NO or NC.
Pulse output: Fill in the desired volume for a contact closure on the mechanical counter output.

4.1 Flow signal

To totalize the m^3 counters and take volume proportional samples, an input signal is needed which is directly related to the flow. The Vision 130™ can totalize a digital or an analogue flow signal.

To select which signal is connected go to:

F2 Menu > 4 In/Output configuration > 1 Flow signal settings

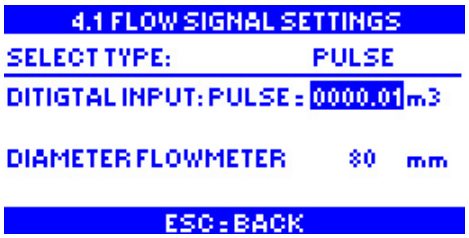


Select which type of flow signal is connected by pressing ↵ and scroll with the ▲ and ▼ keys.

Pulse: Connect a digital pulse signal from a flowmeter to the pulse input (pot free contact). Each contact closure equals a certain amount of volume, in m^3.
Current: Connect a 4-20mA signal from a flowmeter to the analogue input. 4mA equals no flow (0 m^3/h), 20mA equals a set amount of m^3/h)
Pulse + Current: Connect both signals shown above. (Totalizer pulse contact.
V-Notch: When the sampler is equipped with a level sensor, the flow is calculated for a V-notch weir plate.
Venturi: When the sampler is equipped with a level sensor, the flow is calculated for a venturi flume.
Data table: Enter up to 34 p.

Pulse (volumetric pulse contact)

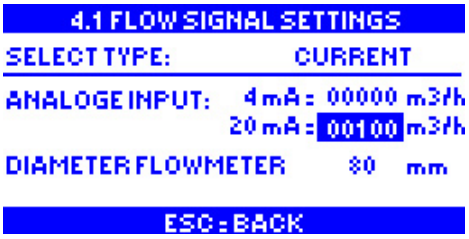
Connect a potential free contact (N.O.) to the pulse input. The contact pulse time length should be between 50 and 1000 ms long,



Select PULSE in menu 4.1.
Enter the volume in m^3 for each contact closure on the pulse input.

Current (volume totalizer by 4-20mA signal)

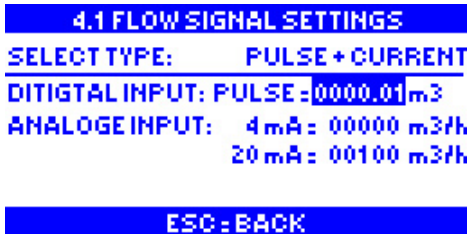
Connect a 4-20mA signal to the analogue input


4.1 FLOW SIGNAL SETTINGS
SELECT TYPE: CURRENT
ANALOGE INPUT: 4 mA = 00000 m3/h
20 mA = 00100 m3/h
DIAMETER FLOWMETER Ø0 mm
ESC : BACK

Enter the amount in m^3/hour for 20mA (full scale value)

Pulse + Current (combination)

When both pulse & current are connected (both of the same flowmeter), the pulse input is used for the m^3 totalizers.
The current input only give an indication of the flow in the totalizer display.


4.1 FLOW SIGNAL SETTINGS
SELECT TYPE: PULSE + CURRENT
DITIGTAL INPUT: PULSE = 0000.01 m3
ANALOGE INPUT: 4 mA = 00000 m3/h
20 mA = 00100 m3/h
ESC : BACK

1 Pulse: Enter the volume in m^3 for each contact closure on the pulse input
4mA: Enter the flow in m^3/h for 4 mA (default 0 m^3/h)
20mA: Enter the flow in m^3/h for 20 mA adjustable from 1- 26000 m^3/h (full scale value).

Open channel flow measurement (Optional)

Sampling systems with open channel flow measurement can be equipped with a level sensor (bubbler tube sensor, or an external 4-20mA signal) and can be used for the following primary devices:

V-Notch: V-notch measurement, for 3 standard angles (28,3°, 53° & 90°).
$Q = Ce \times (8/15) \times \tan(A/2) \times (2g)^{0,5} \times (h)^{2,5} \times 3600$

Venturi: According formula:
$Q = (2/3)^{1,5} \times \sqrt{(g/100)} \times h^{1,5} \times C_d \times b \times C_v \times 3600$,
$C_d = (1 - 0{,}006 \times l / b) \times (1 - 0{,}003\ l / h)$
C_v= from list b/B

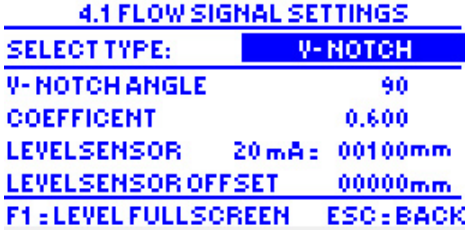
b/B	C_v	b/B	C_v	b/B	C_v
0,10	1,0022	0,34	1,0272	0,52	1,0695
0,15	1,0051	0,36	1,0308	0,54	1,0760
0,20	1,0091	0,38	1,0346	0,56	1,0829
0,22	1,0770	0,40	1,0386	0,58	1,0901
0,24	1,0132	0,42	1,0430	0,60	1,0980
0,26	1,0155	0,44	1,0476	0,62	1,1064
0,28	1,0181	0,46	1,0526	0,64	1,1153
0,30	1,0209	0,48	1,0579	0,66	1,1250
0,32	1,0240	0,50	1,0635	0,68	1,1353

Formula 1: According formula: $Q = C \times \sqrt{h^3} \times 3600$

Formula 2: According formula: $Q = C \times h^e \times 3600$

Data table: Assign 24 medium levels (mm) to 24 flow (in m^3/h)

* Open channel, on water level base flow measurement are based on international leading standards like: ISO 1438 & BS 3600.



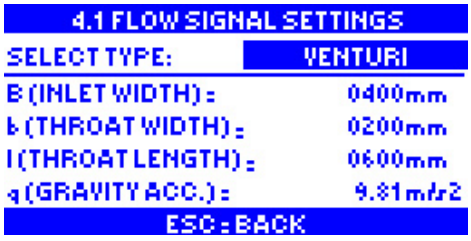
V-notch (V-notch measuring)

V-Notch Angle: Select angle of the notch in degrees, choose from 28,3°, 53° or 90°.

Coefficient: Discharge coefficient, the constant value of the formula of the flow (in m^3/hour).

Level sensor 20mA: Full value of the level measurement.

Level sensor offset: adjust the zero-point of the level measurement.



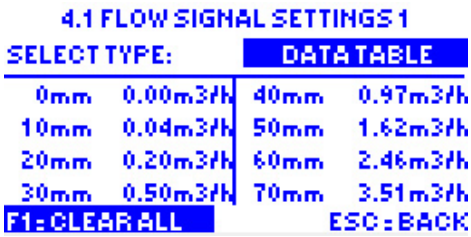
Venturi (Venturi flumes)

Inlet width (B): Enter the width of the inlet (mm).

Throat width (b): Enter the throat width of the flume (mm).

Throat length (l): Enter the throat length (mm)

Gravity: Enter the gravitational acceleration (9,81 for Benelux)



Data table

When the flow at different water levels are known, it's possible to enter these inside a data table.
When the water level reaches between 2 points in the table the flow is calculated by interpolation.

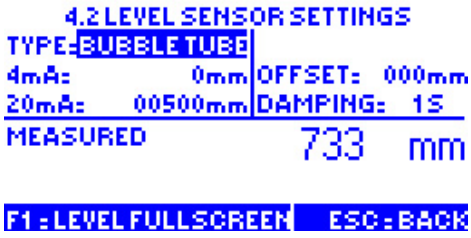
A total of 24 levels and flows can be stored.
Be aware! Enter the values from low to high.

4.2 Level signal (optional)

The Vision can be equipped with a level probe for level measurement. To select a sensor and adjust the settings go to:

F2 Menu > 4 In/Output configuration > 2 Level sensor settings

Select which type of level sensor is connected by pressing ↵ , scroll between the sensor type with the ▲ and ▼ keys. Standard level sensors have the following preset values.



Level probe: Pressure level sensor, standard range (Full scale): 2,5 meter.
Ultra sonic: Ultrasonic level measurement, standard range (Full Scale): 1 meter.
Bubble Tube: Bubble tube measurement: when selected the air pump for the bubble tube starts creating pressure, standard range (Full scale): 0-0,5 meter.

It is possible to change the following settings:

20mA maximum measurable water level, equals 20mA.
Offset: Zero point adjustment, for fine-tuning the level measurement.
Damping: Delay, the input reads every 0,1 sec during xx seconds, the average is shown in the display.
Measured: Actual water level.

4.3 Temperature sensor settings

No access for users.

4.4 Alarm output

When an error / alarm occurs, the alarm output relais is tripped. To choose how the relais contact output is operated, NO (normally open) or NC (normally closed), go to:

F2 Menu > 4 In/Output configuration > 4 Alarm Output

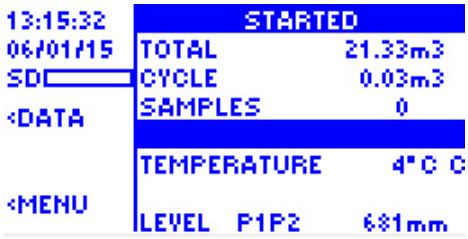
Select how the output needs to switch by pressing ↵. Toggle with the ▲ and ▼ keys and press ↵ to select.

4.5 Pulse output

The pulse output generates a contact closure after an adjustable amount m^3 is counted. To adjust this amount go to:

F2 Menu > 4 In/Output configuration > 5 Pulse Output

Press ↵ and enter the desired value, press ↵ to store.



5 Pump Settings (optional)

ILS samplers can be equipped with a double pump controller. When this function is enabled the last row in the display shows the current level measured by the level sensor.
When pumps are active, the letters P1 (for active pump 1) or P2 (pump 2) are shown in the display (behind level on the last row).

To adjust the pump settings go to:
F2 Menu > 6 Pump Settings

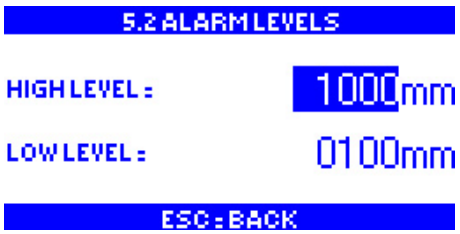
1 Start/stop pump 1/2: Fill out the desired start and stop level for pumps 1 & 2 (see §5.1).
2 Alarm level: Adjust High & Low water level alarm.
3 Overflow: Adjust overflow level.
4 Pump configuration: Determine how many pumps are controlled by the Vision (1 or 2) and if the 2 pumps start needs to alternate.
5 Hour meter: Time meter for the pumps and overflow level (see §5.5).

5.1 Start/stop pump 1/2

To enter the start and stop level for pump 1 and pump 2 go to:

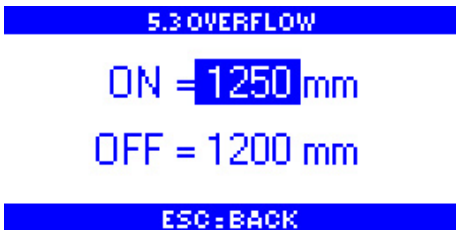
F2 Menu > 5 Pump Settings > 1 Start/stop Pump 1/2

5.2 Alarm levels



Enter the desired levels for the alarm to trip. The alarm trips when the water level is above the high level, or below the low level.

5.3 Overflow

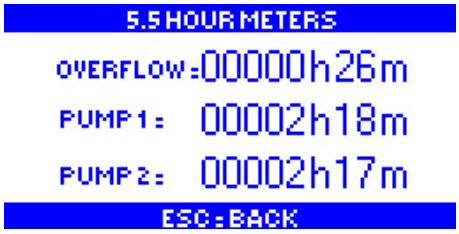


Determine at which water levels the overflow contact needs to close and the hour meter starts running.

BEWARE! Values entered at **ON** should be higher than values entered at **OFF**.

5.4 Pump configuration

Enter the number of pumps used in the system, 1 or 2. When 2 pumps are selected, it's possible to alternate the pump starts of pump 1 & 2.



5.5 Hour meter

When a pump is active (due to the water level) the time meters in menu 5.5 start counting.

6 General settings

General Settings, such as changing time, SMS settings (optional) & SD-card settings can be altered in menu:

F2 Menu > 6 General settings

1 Changing date/time: The sampler is not equipped with an automatic summer/winter time (see §6.1).
2 SMS Settings: Phone numbers settings for SMS messages, assign alarm SMS, Modem settings. (optional).
3 SD-Card: SD-card settings, file names, SD-card history.
4 Log settings: Log interval, which parameters to log.
5 System: Sampler name, hardware configuration.

6.1 Changing date / time

To adjust the date and time go to:

F2 Menu > 6 General settings > 1 Changing Date/Time

6.2 Cool settings

In the totalizer display on the bottom row the actual temperature inside the cabinet is shown. On this row the status of the cool unit is shown. A C appears when the cool unit is active (compressor and ventilator inside the cool shaft turn), and H appears when the temperature is below set point low and the heater is activated.

The cooler settings can be changed in the following menu:

F2 Menu > 3 Cool settings

1 Cool unit Set points: Working range cool unit.
2 Defrost Settings: Defrost interval timer, defrost time length.
3 Cool after first Sample: Start cool unit after the first sample is taken. Reset the cool unit by pressing 5 in menu 1.3.
4 Cool alarm settings: In development.

6.2.1 Cool unit set points

To change the working range of the cool unit, go to:

F2 Menu > 3 Cool settings > 1 Cool unit Set points

Set Point High: When the temperature reaches this setting (or is above this setting), the cool unit starts cooling (default 5).
Set Point Low: When the temperature reaches this setting (or is beneath this setting), the cool unit stops cooling (default 3).
Current Temperature: This is the container temperature.

6.2.2 Defrost settings

Defrost settings can be altered in menu:

F2 Menu > 3 Distributor settings > 2 Defrost Settings

Defrost interval: When the temperature reaches this setting (or is beneath this setting), the cool unit stops cooling.
Defrost time: When the temperature reaches this setting (or is beneath this setting), the cool unit stops cooling.
Continue cooling / Defrost (stop cool unit): When set to Defrost the sampler stops cooling to defrost.

6.2.3 Cool after first sample

To safe power it is possible to set the sampler to start cooling when a sample is taken. To use this setting go to:

F2 Menu > 3 Cool settings > 1 Cool unit Set points

Go to the reset menu to reset the cooling and press 5.

6.2.4 Cool alarm settings

In development.

6.3 Log settings

Data (totalizers, counters, etc.) of the Vision 130™ are internally stored in data tables. When a new row is stored in the data table, the oldest row (last) is erased and the rows above are copied to one row below.

To read the stored data from the Vision 130™ press: **F1** "Data Log", press the numeric key to select the desired data.

De Vision 130™ contains the following 6 data tables:

Previous cycle history: Stores the beginning and end date & time of every cycle, stores: total m^3, number of samples, number of error samples and min and max temperatures. (2000 log rows). Stored on SD-card.
Total/sample history: Stores values: total m^3, number of samples & number of error samples according a preset time interval. (2000 log rows). Stored on SD-card.
Temperature/level history: Stores the level & temperature values according a preset time interval. (2000 log rows). Stored on SD-card
Event history: Stores event with date & time. For example: start program, stop program, error samples, alarm messages, etc. (1000 log rows).
Store load sampler Settings: Store and load programmed sampler settings such as; sample interval distributor settings, input signals etc. Default settings are stored under program 0
NEN 6600 Check: Cycle history + flow check (see the calculated flow velocity in percentages) For Dutch market.

Storing program settings

It is possible to store settings for 9 different programs.
The following settings are stored:

Sample interval	Level sensor settings
Sample volume	Temperature sensor settings
Maximum error samples	Pump settings
Distributor turn time	Cool settings
Distributor turn day	Log settings
Distributor interval	Container configuration
Overflow protection	Program name
Flow signal settings	

F1 Data Log > 5 Sampler settings

1. Enter the password.
2. Select a number from 1 – 9* to store the program settings.

3. Press **F1** to store the current settings to the selected program.
4. Press **F2** to load the stored settings from the selected program.

5. Each program can be named (maximum of 8 characters), this way the programs are more recognizable.

* Program 0 cannot be changed, these are the default settings.

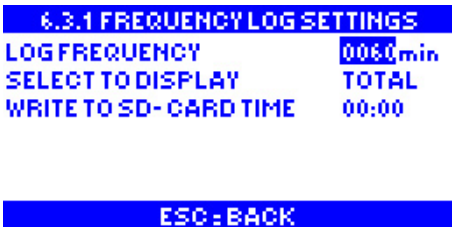
To change the SD card logging settings go to:

F2 Menu > 6 General settings > 3 Log settings

1 Frequency: Determine the log frequency. Choose which totalizer is displayed. Also choose a time to reset the interval.
2 Event Log: Select extra events to log in de event log.
4 SD Card: Change settings regarding de SD-card.

6.3.1 Frequency log settings

To change the frequency log settings go to:



F2 Menu > 6 General settings > 3 Log settings > 1 Frequency log

Log frequency: Determine at what time interval the data needs to be stored.
Select to Display: Select which totalizer is displayed in the readout menu.
Write to SD-card time: Determine at what (clock) time table should be written to the SD-card & the time interval needs to reset & start again.

6.3.2 Event log settings

On default settings the sampler doesn't log the samples, cool unit actions & pump actions in the event log file. To have these actions logged go to:

F2 Menu > 6 General settings > 3 Log settings > 2 Event log

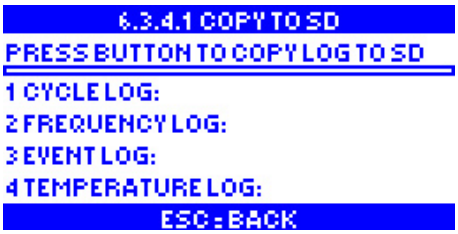
6.3.4 SD-Card

Vision 130™ is standard equipped with a micro-SD-card. The data stored in the data tables of the vision can be copied to an SD-card. Each time the sampler stores data to the data table, a copy is made on the SD-card inside.

To adjust the SD-card settings:

F2 Menu > 6 General settings > 3 Log settings > 5 SD-Card

6.3.4.1 Copy data table to SD-card



When a new row is stored in the data table, the vision copies the complete data table to the SD-card.

6 General settings > 3 Log settings > 5 SD-Card > 1 Copy to SD

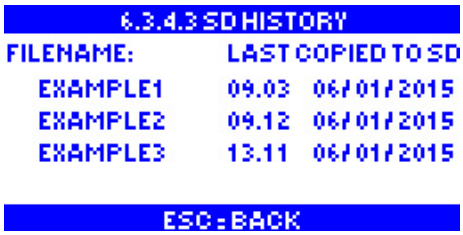
Choose which data table (log file) needs to be copied to the SD-card & press the corresponding numeric key. When the loading bar is full the file is successfully copied.

6.3.4.2 Changing log file name

Every table can be stored with an unique file name. To change this file name go to:

6 General settings > 3 Log settings > 5 SD-Card > 2 Log file name

Use the numeric keys to change the filename (like making a textmessage on a mobile phone).



6.3.4.3 SD-card History

To check the last successful writing of the data to SD-card go to:

6 General settings > 3 Log settings > 5 SD-Card > 2 SD history

6.4 SMS settings (optional)

Optional for the Vision 130™ is a GSM-module to receive text messages from the sampler, such as totalizer values, alarms, etc.

6.4.1 Phone numbers

To receive text messages the receiving phone number. Go to:

F2 Menu >6 General settings >2 SMS Settings >1 Phone numbers

6.4.2 Status SMS

To select which events should be reported by text message go the menu:

2 Menu > 6 General settings > 4 SMS Settings > 4 Status SMS

Cycle counters: Send a text when the distributor turns to the next container containing the values of : the total counter, cycle counter, sample counter & error counter
Status Program: Send when the sample program status changes. (starts or stops by manually / calendar or date & time)
Extra: Not used

6.4.3 Alarm SMS 1

To select which alarms should be reported by text message go to:

2 Menu > 6 General settings > 4 SMS Settings > 4 Status SMS 1 or
2 Menu > 6 General settings > 4 SMS Settings > 4 Status SMS 2

To many error samples: Send text when the sampler goes in alarm when to many consecutive error samples are taken.
High level alarm: Send text when the high level alarm switches on/off **(**When equipped with a pump controller)
Low level alarm: Send text when the low level alarm switches on/off **(**When equipped with a pump controller)
Overflow level: Send text when the overflow level alarm switches on/off **(**When equipped with a pump controller)
Pomp 1 error: Send text when pomp 1 switches in alarm
Pomp 2 error: Send text when pomp 1 switches in alarm
Level sensor defect: Send text when the level sensor gives an error signal.
Extra: Not used

6.4.4 Modem settings

No access for users.

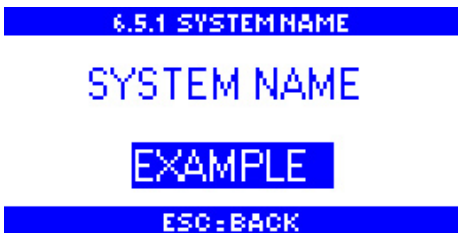
6.5 System

To change system characteristics go to:

2 Menu > 6 General settings > 5 System

System name: To give the sampler its own name. (see §6.5.1)
Hardware Configuration: System hardware setup, not for users.
I/O check the input- and output status (see §6.5.3)

6.5.1 System Name



To give a sampler a name (maximum of 8 characters) go to:

2 Menu > 6 General settings > 5 System > 1 System Name

6.5.2 Hardware configuration

This parameter cannot be entered by users.

6.5.3 Container Configuration

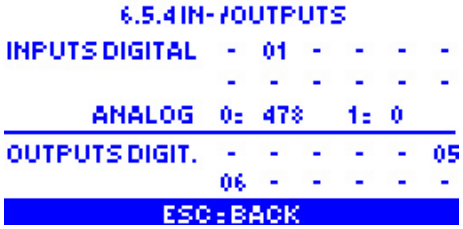
To change the container configuration go to:

F2 Menu > 3 Distributor settings > 3 Container Config.

Number of Containers: Fill in how many containers will be used.
Container Volume: Fill in the volume of each container.

6.5.4 I/O check

To check the input- and output status go to:



2 Menu > 6 General settings > 5 System > 2 Input Signals
5 Input Signals

When a digital input or output is active the corresponding number will be displayed.
E.g.: the display on the left shows input D01 and output O06 active.

6.5.5 Ethernet Settings (optional)

An optional Ethernet-extension-module makes it possible to connect the Vision to a computer network. You can access the vision with program Remote access or Remote Operator (download). Data (data tables only with Remote access) can be downloaded and settings can be changed online from your desktop computer.

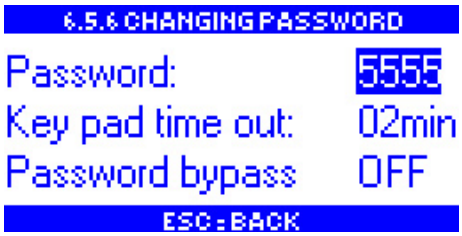
To assign an IP-address, subnet mask & gateway to the Vision, go to:

2 Menu > 6 General settings > 5 System > 5 Input Signals

6.5.6 Changing Password settings

The program settings are protected with a password. When entering an wrong password it's still possible to take a manual sample or rotate the distributor to the next container. To alter the password settings go to:

2 Menu > 6 General settings > 5 System > 6 Changing password



Password: You can change to password, adjustable from 1-9999
Key pad time out: When the menu is active and no keys are pressed during a set, the menu closes. For re-entering the menu the password needs to be entered again.
Password bypass: Bypass the password protection, no password needs to be entered when entering the menu.

7 Reading SD-card

Requirements

To retrieve the data stored on the micro SD-card, the following is required:

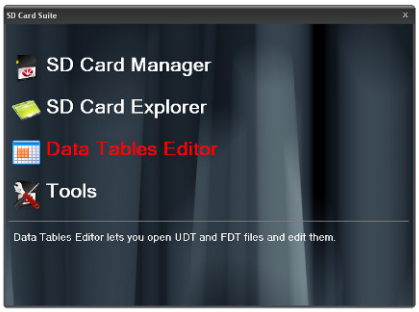
- PC with installed Unitronics SD-card suite software *
- Card-reader, suitable for SD-cards

* Download the software from the following link:

http://www.unitronics.com/Content.aspx?page=Downloads

Scroll down to SD-card-suite and press free download.
Open the installation file and follow the instructions.

Retrieving data

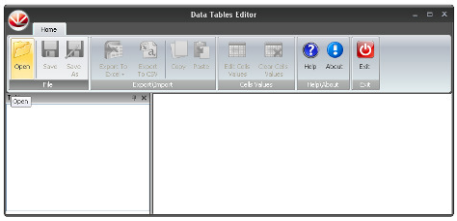

SD Card Suite
SD Card Manager
SD Card Explorer
Data Tables Editor
Tools
Data Tables Editor lets you open UDT and FDT files and edit them.

1) Check menu 6.3.5.3 when the last data transfer from Vision to SD-card took place.

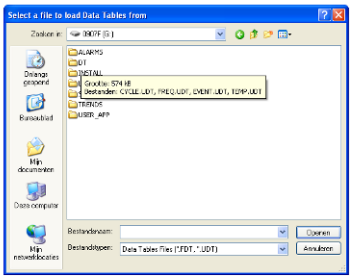
2) Remove the SD-card from the vision.

3) Place the SD-card inside the card reader from your PC.

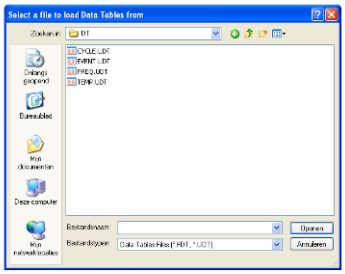
4) Open the program SD Card Suite and right-click on Data Tables Editor.



5) Right-click the **Open** icon.



6) Select the folder "**DT**" from the SD card.



7) Select the file to open.

8 Default settings

The Vision 120™ has the following default settings:

Sample principle	Volume Proportional
Sample interval	Mo=1m^3, Tu=1m^3, We=1m^3, Tu=1m^3, Fr=1m^3, Sa=1m^3, Su=1m^3
Sample Volume	50 ml
Activation time ILS sampler*	3 sec (only for ILS samplers)
Air pump settings	Purge time = 7 sec, Maximum suction time = 20 sec, Dose time = 8 sec (vacuum only)
Maximum number of error samples*	0 (off)
Turn time *	08:00 Mo, Tu, We, Th, Fr, Sa, Su (all days)
Distributor interval *	Off
Container configuration *	4 containers 15 litres
Turn after power failure *	Off
Container overflow protection	On
Cool settings	Set point high= 5°C, Set point low= 3°C
Defrost cycle	Interval = 3 hours Shut off 15 minutes
Start cooling after First sample	Off
Pulse input	1 pulse = 0,1 m^3
Temperature Sensor settings	Min= -325, Max= 445, Offset -9
Password	5555